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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/729,501
Filing Date: December 05, 2003
Appellant(s): WOZNIAK, JOHN A.

MAILED
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GROUP 2800

John Wozniak
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/13/06 appealing from the Office action mailed 2/08/06

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon: Okutoh (U.S. 6,060,185), Fujiwara (U.S. 6,501,248), Shirakawa (U.S. 6,534,953), Cheon (U.S. 5,963,019), O'Connor (U.S. 2004/0062387 A1), Demuro (U.S. 6,046,575), Huelss (U.S. 2003/0080747), Okada (U.S. 2003/0117143 A1), Saeki (U.S. 6,492,791),

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Okutoh (U.S. 6,060,185).

Regarding claim 1, Okutoh discloses a battery pack, comprising: a protection circuit (figure 1 item 13) adapted to detect an excessive current consumption condition associated with electronic components forming the battery pack (Figure 1 items 7, 8, 12; column 3 lines 39 – 42: current is cutoff when an overcurrent is protected).

3. Claims 10, 11, 13, 14, 30 and 31 are rejected under 35 U.S.C. 102(a) as being anticipated by Fujiwara (U.S. 6,501,248).

Regarding claim 10, Fujiwara discloses a battery pack, comprising: at least one battery cell (figure 1 item 30) means coupled to electronic components (51, 52, and 53) forming the battery pack (figure 1 item 30 coupled to items Vss, Q2, Q1 and other components within the battery pack); and means for detecting (60, 61) an excessive current consumption condition associated with electronic components (column 3 lines 48 thru 56).

Regarding claims 11, 13 and 14, Fujiwara discloses a battery pack (figure 1 item 10) comprising a means for interrupting current flowing from the at least one battery cell means (figure 1 item 30) to the electronic components in response to detect the excessive current consumption condition (column 4 lines 28 thru 31).

Regarding claim 30, Fujiwara discloses a battery core pack (figure 1 item 30) connected to a positive terminal (figure 1 item labeled as +) of the battery pack and a negative terminal of the battery pack (figure 1 item labeled as -), the positive and negative terminals adapted to be connected to a host device (figure 1 item 40); and a protection circuit (figure 1 item 1) adapted to distinguish between current consumption associated with electronic components coupled to the battery core pack and forming the battery pack and current flow associated with the host device to determine whether an excessive current consumption condition exits associated with the electronic components of the battery pack (figure 1 items A and B and column 3 lines 48 - 56).

Regarding claim 31, Fujiwara discloses wherein the protection circuit (figure 1 item 1) is adapted to interrupt current flowing to the electronic components of the battery pack in response to detecting excessive current consumption condition (column 3 lines 48).

4. Claims 15, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirakawa (U.S. 6,534,953).

Regarding claim 15, Shirakawa discloses wherein a battery pack comprising: a battery core pack (figure 2 item 60) coupled to electronic components forming the battery pack (figure 2 item 60 connected to item 70); and an integrated circuit adapted to compare potentials across at least two different current sensors to

detect an excessive current consumption condition associated with electronic components forming the battery pack (figure 2 items 74 and 75; column 5 lines 16 thru 21). Shirakawa Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

Regarding claim 19, Shirakawa discloses wherein at least one of the current sensors comprises a current sense resistor (figure 2 item 74).

Regarding claim 20, Shirakawa discloses wherein the current sense resistor (figure 2 item 74) is serially connected between a positive terminal of the battery pack, (figure 2 item 92), and a recharge transistor of the battery pack (figure 2 item 76).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

6. Claim 2, 4, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of Fujiwara (U.S. 6,501,248).

Regarding claims 2, 4, 5 and 9, Okutoh does not disclose wherein the protection circuit is adapted to interrupt current flow to the electronic components forming the battery pack in response to detecting the excessive current consumption condition. Fujiwara discloses in column 3 line 56 thru column 4 line 2 wherein the protection circuit (figure 1 item 1) is designed to stop current flow when an excessive current is detect so that it does not damage the battery pack. At the time of invention, it would have been obvious to a person of ordinary skill

in the art to design the protection circuit to interrupt the current flow at the detection of an excessive current so that it protects the battery pack from overcharge, which can be damaging to the system.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of Shirakawa (U.S. 6,534,953).

Regarding claim 3, Okutoh does not disclose wherein the protection circuit is adapted to compare a voltage potential across at least two different current sensors to detect the excessive current consumption condition. Shirakawa discloses in column 5 lines 17 thru 25 wherein the current sensing resistors control the current. Shirakawa meets the Okutoh deficiencies wherein figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit. At the time of invention, it would have been obvious to a person ordinary skill in the art to use a method of comparing a voltage potential across two current sensors because it provides a more accurate reading of excessive current.

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of Cheon (U.S. 5,963,019).

Regarding claims 6 and 7, Okutoh does not disclose wherein at least one fuse serially connected to a battery core pack for interrupting current flowing from the battery core pack to the electronic components. Cheon discloses in figure 2 item 80 wherein the fuse is serially connected to the battery pack. Cheon further

discloses in column 6 lines 26 thru 31 that when the fuse (figu.2 item 80) detects an excessive current level, it opens, thus interrupting the flow of current. At the time of invention if would have been obvious to a person of ordinary skill in the art to implement a fuse that is serially connected to the battery because it can safely monitor the level of current discharge to the electronic components and shut of the flow of excess current which could be potentially hazardous to the rest of the electronic components.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okutoh (U.S. 6,060,185) in view of O'Connor (U.S. 2004/0062387 A1).

Regarding claim 8, Okutoh does not disclose wherein the protection circuit comprises a fuel gauge integrated circuit adapted to determine a combined current flow associated with a host device and the electronic components forming the battery pack. O'Connor discloses in figure 1 item 22 a current monitor, which acts as a fuel gauge, as disclosed in paragraph [0048], by monitoring the current charge and discharge. At the time of invention, it would have been obvious to a person of ordinary skill in the art it would have obvious to a person of ordinary skill in the art to implement the fuel gauge system that monitors the current flow so that current is safely regulated to the components of the battery and prevents damaging current overcharge.

10. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (U.S. 6,501,248) in view Shirakawa (U.S. 6,534,953).

Regarding claim 12, Fujiwara does not disclose wherein the battery pack further comprising means for comparing a voltage potential across at least two different current sensors to detect the excessive current condition. Shirakawa discloses in

column 5 lines 17 thru 25 wherein the current sensing resistors control the current. Shirakawa meets the Fujiwara deficiencies wherein figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit. At the time of invention, it would have been obvious to a person ordinary skill in the art to use a method of comparing a voltage potential across two current sensors because it provides a more accurate reading of excessive current.

11. Claims 16, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) in view of Fujiwara (U.S. 6,501,248).

Regarding claim 16, Shirakawa does not disclose wherein the integrated circuit is adapted to interrupt current flowing to the electronic components forming the battery pack in response to detecting the excessive current consumption. Fujiwara discloses in column 4 lines 28 thru 31 that the overcharge protection circuit detects the potential differences and stops charging if an overcharge is detected. At the time of invention, it would have been obvious to a person of ordinary skill in the art to construct the integrated circuit to interrupt current flow of when an excessive current condition is detected so that the circuit is prevented from overcharge damage.

Regarding claims 24 and 25, Shirakawa does not disclose wherein the integrated circuit is adapted to distinguish between current flow associated with a host device and current consumption associated with the electronic components

forming the battery pack based on the potentials across the at least two current sensors. Fujiwara discloses in figure 1 items A and B, wherein the protection circuit distinguishes between current flow associated with the host device and current flow associated within the electric components. Fujiwara further discloses in column 9 line 59 thru column 10 line 12 wherein the potentials are detected over two terminals. At the time of invention, it would have been obvious to a person of ordinary skill in the art, to modify the circuit so that is distinguishes between the different currents so that when overcharging occurs, it can properly cutoff the charging or discharging the circuit as needed.

12. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) in view of Demuro (U.S. 6,046,575).

Regarding claim 17 and 18, Shirakawa does not disclose wherein the battery pack comprises a fuse serially connected to a positive terminal of a battery core pack for interrupting current flowing from the battery core pack to the electronic components in response to detecting the excessive current consumption condition. Demuro discloses in figure 1, wherein a fuse item 124 serially connected to the positive terminal (figure 1 item 106) of a battery pack. At the time of invention if would have been obvious to a person of ordinary skill in the art to implement a fuse that is serially connected to the battery because it can safely monitor the level of current discharge to the electronic components shuts of the flow of current which could be potentially hazardous to the rest of the electronic components.

13. Claims 22, 33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501248) in view Huelss (U.S. 2003/0080747).

Regarding claims 22, 33, and 38, Shirakawa and Fujiwara do not disclose wherein at least one of the current sensors comprises a current sense resistor. Shirakawa and Fujiwara also do not further disclose wherein the current sense resistor is serially connected between a positive terminal of the battery pack and a positive terminal of the battery core pack. Huelss discloses in figure 3, wherein the current sensor, item 134, comprises sense resistor connected in series with the positive battery core pack terminal (figure 3 item 110) and a transistor, item 130. At the time invention, it would have been obvious to a person of ordinary skill in the art, to implement a resistor as a current sensor because a resistor provides a simpler method in determining the differences in potential in a circuit.

14. Claims 21, 23, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501248) in view of Okada (U.S. 2003/0117143 A1).

Regarding claims 21, 23 and 34, Shirakawa and Fujiwara do not disclose wherein the current sense resistor is serially connected between a negative terminal of the battery pack and a negative terminal of a battery core pack. Okada discloses in figure 1 wherein the current sensor, item 6, is a resistor serially connected to the negative terminal of the battery pack and a negative terminal of a battery core pack (figure 1 item 1). At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a current sense resistor at the negative terminals of the battery core pack so that the

current flowing from the negative terminal battery pack can be monitored and stopped if it rises above a predetermined level.

15. Claims 26, 28, 29 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501248) in view of Cheon (U.S. 5,963,019).

Regarding claim 26, Shirakawa does not disclose wherein a fuse serially connected between a positive terminal of the battery pack and a recharge transistor for interrupting current flowing from the host device to the electronic components. Cheon discloses in figure 5, a fuse, item 80, serially connected between the positive terminal (figure 5 item 10) of the battery pack and a recharge transistor (figure 1 item NM1). At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a serially connected fuse between the battery pack terminals and the transistor because the fuse can accurately detect overcharge and cheaper to make.

Regarding claims 28, 29, 35, and 37, Shirakawa and Fujiwara do not disclose wherein the integrated circuit is coupled to a fuse of interrupting current flowing from a host device to the electronic components in response to detecting the excessive current consumption condition. Cheon discloses in figure 5 item 80 and in column 6 lines 26 thru 34 wherein a fuse, item 80, is coupled to the integrated circuit items 61 and 62 and the fuse interrupts charging if it detects and excessive current consumption. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a fuse coupled to the integrated circuit because the fuse can accurately detect overcharge and cheaper to make.

16. Claims 27 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirakawa (U.S. 6,534,953) and Fujiwara (U.S. 6,501248) in view of Saeki (U.S. 6,492,791).

Regarding claim 27 and 36, Shirakawa and Fujiwara do not disclose wherein a fuse serially connected between a positive terminal of the battery core pack and a charge transistor for interrupting current flowing from the host device to the electronic components. Saeki discloses in figure 3 wherein a fuse, item 102, is serially connected between the positive terminal (figure 3 item E1) of a battery core pack and a charge transistor (figure 3 item 103. At the time of invention, it would have been obvious to a person of ordinary skill in the art to implement a serially connected fuse between the battery pack terminals and the transistor because the fuse can accurately detect overcharge and cheaper to make.

17. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (U.S. 6,501,248) in view of Shirakawa (U.S. 6,534,953).

Regarding claim 32, Fujiwara does not disclose wherein the protection circuit is adapted to compare voltage potentials across at least two different current sense resistors to detect the excessive current consumption condition. Shirakawa discloses in figure 2 and in column lines 58 thru 62 wherein the protection circuit comprises two current sensing resistors, items 74 and 75, which detect the excessive current consumption. Shirakawa further discloses in column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Fujiwara system with the

Shirakawa system so that the system may distinguish between its charging and discharging states so that the system is not damaged.

(10) Response to Argument

1. First Ground of Rejection (Claim 1)

The appellant argues wherein Okutoh does not disclose or even suggest a protection circuit for detecting and excessive current consumption condition associated with electronic components forming the battery pack as recited by claim 1. Okutoh discloses an overcurrent protection circuit in figure 1 item 13 and column 3 line 39. The components in the Okutoh reference form a battery pack since they (figure 1 items 13, 7, 8, and 2) are coupled to the battery pack. Please note that the applicant's figure 1 is very similar to figure 1 of the Okutoh reference, with components of the battery pack each seen within the dotted lines. The appellant continues to argue wherein the detected current in the Okutoh system is associated with a load external to the battery and not associated with the components forming the battery pack. Any current "associated" with the load is associated with the components since all the current through the load is derived from that through components. The excessive current is detected by the voltage drop across the charging and discharging switches, 7 and 8, as disclosed in column 3 lines 40 – 43, which are also components forming the battery pack as they are coupled to the battery pack, item 1.

2. Second Ground of Rejection (Claims 10, 11, 13 and 14)

The appellant argues that the current condition detected in the Fujiwara reference is directed toward a current condition of the components of the battery and not a current condition of electronic components coupled to the battery pack.

Column 6 line 49 – column 7 lines 27 disclose wherein excessive charging current is detected throughout the electronic components within the battery pack.

The appellant also argues that the examiner cites the battery 30 of Fujiwara as corresponding to both the "battery cell means" and to the "electronic components". This is incorrect, please see arguments above wherein figure 1 item 30 is a battery cell means are to coupled to items Vss, Q2, Q1 and other components within the battery pack.

The appellant argues that the Fujiwara system detects current that is associated with load external to the battery and not the components forming the battery pack. Column 6 line 49 – column 7 lines 27 disclose wherein excessive charging current is detected throughout the electronic components within the battery pack. Any current "associated" with the load is associated with the components since all the current through the load is derived from that through components.

3. Second Ground of Rejection (Claims 30 and 31)

The appellant argues that Fujiwara appears to be directed to toward a current condition of the battery of battery pack and not a current condition of components of the battery pack that are coupled to the battery of Fujiwara. Please see previous arguments, Second Ground of Rejection (Claims 10, 11, 13 and 14).

The appellant argues that the Fujiwara system detects current that is associated with load external to the battery and not the components forming the battery pack. Column 6 line 49 – column 7 lines 27 disclose wherein excessive charging current is detected throughout the electronic components within the battery pack. Any current "associated" with the load is associated with the components since all the current through the load is derived from that through components.

4. Third Ground of Rejection (Claim 15)

The appellant argues that Shirakawa reference is directed toward a current condition of the battery cell of the battery pack and not the current consumption of electronic components forming the battery pack and coupled to the battery. Figure 2, column 2 lines 33 – 42, column 5 lines 26 - 34 shows wherein current is sensed from the charged power sources and supplied to the battery core pack. Figure 2 shows wherein the battery pack item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. Therefore the current sensed from the battery pack is current that is associated with the electronic components because the battery pack is coupled to these electronic components.

The appellant further argues that the examiner states that Shirakawa discloses that the sensors control that charge current within the system, which comprises the electronic components of the battery pack. The appellant continues to argue that even though current may be detected or controlled within the battery pack, the charge current is associated with the battery of the Shirakawa battery pack and not the components forming the battery pack. Figure 2, column 2 lines 33 – 42, column 5 lines 26 - 34 shows wherein current is sensed from the charged power sources and supplied to the battery core pack. Figure 2 shows wherein the battery pack item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. Therefore the current sensed from the battery pack is current that is associated with the electronic components because the battery pack is coupled to these electronic components.

The appellant further argues that Shirakawa does not compare potentials across at least two different sensors to detect an excessive current consumption

condition associated with electronic components. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

5. Fourth Ground of Rejection (claims 2, 4, 5, and 9)

The appellant argues wherein the Okutoh reference does not even disclose or suggest a protection circuit adapted to detect an excessive current consumption condition associated with electronic components forming the battery pack. Okutoh discloses an overcurrent protection circuit in figure 1 item 13 and column 3 line 39. The components in the Okutoh reference form a battery pack since they (figure 1 items 13, 7, 8, and 2) are coupled to the battery pack. The excessive current is detected by the voltage drop across the charging and discharging switches, 7 and 8, as disclosed in column 3 lines 40 – 43, which are also components forming the battery pack as they are coupled to the battery pack, item 1.

The appellant further argues that the examiner did not rely on Fujiwara to remedy at least the deficiencies of Okutoh. Fujiwara discloses in column 3 line 56 thru column 4 line 2 wherein the protection circuit is designed to stop current flow when an excessive current is detect so that it does not damage the battery pack.

6. Fifth Ground of Rejection (claim 3)

The appellant argues that the Okutoh reference does not disclose or suggest a protection circuit adapted to detect and excessive current consumption condition associated with electronic components forming the battery pack. Okutoh discloses in figure 1 and in column 3 lines 39 – 42 wherein item 13 is an

overcurrent protection circuit. Okutoh further discloses in column 3 lines 40 – 45 wherein other components of the circuit, other than the battery, items 7 and 8, are involved in the overcurrent detection.

The appellant further argues that the examiner did not rely on the Shirakawa reference to remedy the deficiencies of Okutoh reference. Shirakawa meets the Okutoh deficiencies wherein figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

7. Sixth Ground of Rejection (Claims 6 and 7)

The appellant argues that the Okutoh reference does not disclose or suggest a protection circuit adapted to detect an excessive current consumption condition associated with electronic components forming the battery pack. Okutoh discloses in figure 1 and in column 3 lines 39 – 42 wherein item 13 is an overcurrent protection circuit. Okutoh further discloses in column 3 lines 40 – 45 wherein other components of the circuit, other than the battery, items 7 and 8, are involved in the overcurrent detection.

The appellant further argues that the examiner did not rely on the Cheon reference to remedy the deficiencies of Okutoh reference. Cheon discloses in figure 2 wherein the fuse, item 80, is serially connected to the battery item 40. Cheon further discloses wherein the fuse, item 80, is connected to a host device via the poly-switch, item 90, to terminal, item 10, which connects the system to a host device.

8. Seventh Ground of Rejection (Claim 8)

The appellant argues that the Okutoh reference does not disclose or suggest a protection circuit adapted to detect an excessive current consumption condition associated with electronic components forming the battery pack. Okutoh discloses in figure 1 and in column 3 lines 39 – 42 wherein item 13 is an overcurrent protection circuit. Okutoh further discloses in column 3 lines 40 – 45 wherein other components of the circuit, other than the battery, items 7 and 8, are involved in the overcurrent detection.

The appellant further argues that the examiner did not rely on the O'Connor reference to remedy the deficiencies of Okutoh reference. O'Connor discloses in figure 1 item 22 a current monitor, which acts as a fuel gauge, as disclosed in paragraph [0048], by monitoring the current charge and discharge.

9. Eighth Ground of Rejection (Claim 12)

The appellant argues that Fujiwara does not disclose or even suggest at least one cell means coupled to electronic components forming the battery pack and means for detecting an excessive current consumption condition associated with the electronic components. Fujiwara discloses in figure 1, wherein item 30, is at least one battery cell, coupled to a resistor, switches, SW3, Q2, a capacitor and a diode. Figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75.

The appellant also agrees that it would have been obvious to one ordinary skill to modify the Fujiwara system with the Shirakawa system. Both of the Fujiwara and Shirakawa system are systems for charging a battery pack and comprises a protection circuit and measures the overcurrent in the system.

The appellant further argues that Shirakawa does not compare voltage potentials across at least two different sensors to detect an excessive current consumption condition associated with electronic components. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

10. Ninth Ground of Rejection (Claims 16, 24, and 25)

The appellant argues that Shirakawa reference does not disclose or suggest a battery core pack coupled to electronic components forming the battery pack and an integrated circuit adapted to compare potentials across at least two different current sensor to detect an excessive current consumption condition associated with the electronic components. Shirakawa discloses in figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

The appellant further argues that the Fujiwara reference does not remedy the deficiencies of Shirakawa. Fujiwara discloses in column 3 line 56 thru column 4 line 2 wherein the protection circuit is designed to stop current flow when an excessive current is detect so that it does not damage the battery pack.

11. Tenth Ground of Rejection (Claims 17 and 18)

The appellant argues that Shirakawa reference does not disclose or suggest a battery core pack coupled to electronic components forming the battery pack and

an integrated circuit adapted to compare potentials across at least two different current sensor to detect an excessive current consumption condition associated with the electronic components. Shirakawa discloses in figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

The appellant further argues that the Demuro reference does not remedy the deficiencies of Shirakawa. Demuro discloses in figure 1, wherein the fuse item 124 is serially connected to the battery pack, item 112, and the host device, the charger, item 104.

12. Eleventh Ground of Rejection (Claims 19, 20, 22, 23, and 38)

The appellant argues that Shirakawa reference does not disclose or suggest a battery core pack coupled to electronic components forming the battery pack and an integrated circuit adapted to compare potentials across at least two different current sensor to detect an excessive current consumption condition associated with the electronic components. Shirakawa discloses in figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

The appellant further argues that the Shirakawa reference does not disclose or suggest a protection circuit adapted to distinguish between current consumption associated with electronic components coupled to the battery pack and forming the battery the battery pack and current flow associated with the host device to determine whether an excessive current flow associated with the components of the battery pack. For reasons of clarification, since claim 15 is rejected upon by the Shirakawa reference, those claims that depend from claim 15, claims 19, 20, and 22 are rejected as being unpatentable under Shirakawa in view of Huelss. Further, since claim 30 is rejected upon by the Fujiwara reference, those claims that depend from claim 30, claims 33 and 38 are rejected as being unpatentable under Fujiwara in view of Huelss. Shirakawa discloses in figure 2, wherein item 72 is a protection circuit which, as disclosed in column 6 lines 7 – 19 protect the system, including the electronic components from an overcharging state. Huelss discloses in figure 3, item 134 wherein the current sensor comprises sense resistor, which is connected serially between a positive terminal (figure 2 item 114: when the switch is closed) of the battery pack and a positive terminal (figure 3 item 114) of the battery core pack (figure 3 item 100). Huelss also discloses in figure 3, item 134 wherein the current sensor comprises sense resistor, which is connected serially between a positive terminal of the battery pack and a transistor (figure 3 item 130).

13. Twelfth Ground of Rejection (Claims 21, 23, and 34)

The appellant argues that the Shirakawa reference does not disclose or suggest a battery core pack coupled to electronic components forming the battery pack and an integrated circuit adapted to compare potentials across at least two

different current sensor to detect an excessive current consumption condition associated with the electronic components. Shirakawa discloses in figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

The appellant further argues that the Shirakawa reference does not disclose or suggest a protection circuit adapted to distinguish between current consumption associated with electronic components coupled to the battery pack and forming the battery the battery pack and current flow associated with the host device to determine whether an excessive current flow associated with the components of the battery pack. Shirakawa discloses in figure 2, wherein item 72 is a protection circuit which, as disclosed in column 6 lines 7 – 19, protect the system, including the electronic components from an overcharging state.

The appellant further argues that the examiner does not rely on the Fujiwara or Okada references to remedy for the deficiencies of Shirakawa. Fujiwara is used a primary reference for claim 34 as it depends on claim 30. Okada discloses in figure 1 wherein the current sense resistor, item 6, is serially connected between a negative terminal of the battery pack, (the whole system of figure 1), and a negative terminal of the battery core pack (item 1).

14. Thirteenth Ground of Rejection (Claims 26, 28, 29, 35 and 37)

The appellant argues that Shirakawa reference does not disclose or suggest a battery core pack coupled to electronic components forming the battery pack and

an integrated circuit adapted to compare potentials across at least two different current sensor to detect an excessive current consumption condition associated with the electronic components. Shirakawa discloses in figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

The appellant further argues that the Shirakawa reference does not disclose or suggest a protection circuit adapted to distinguish between current consumption associated with electronic components coupled to the battery pack and forming the battery the battery pack and current flow associated with the host device to determine whether an excessive current flow associated with the components of the battery pack. Shirakawa discloses in figure 2, wherein item 72 is a protection circuit which, as disclosed in column 6 lines 7 – 19 protect the system, including the electronic components from an overcharging state.

The appellant further argues that the examiner does not rely on the Fujiwara or Cheon references to remedy for the deficiencies of Shirakawa. Fujiwara is used a primary reference for claim 37 as it depends on claim 30. Cheon discloses in figure 5 wherein the fuse, item 80 is coupled between the positive terminal, item 10, and a recharge transistor for interrupting current from the host device to the electronic components, item NM, which includes switching circuit, item 61.

15. Fourteenth Ground of Rejection (Claims 27 and 36)

The appellant argues that Shirakawa reference does not disclose or suggest a battery core pack coupled to electronic components forming the battery pack and an integrated circuit adapted to compare potentials across at least two different current sensor to detect an excessive current consumption condition associated with the electronic components. Shirakawa discloses in figure 2 shows wherein the battery core pack, item 60 is coupled to the electronic components of the pack, items 82, 72, 74, and 75. The claim simply states that the potentials are compared, not what they get compared to. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

The appellant further argues that the Shirakawa reference does not disclose or suggest a protection circuit adapted to distinguish between current consumption associated with electronic components coupled to the battery pack and forming the battery the battery pack and current flow associated with the host device to determine whether an excessive current flow associated with the components of the battery pack. Shirakawa discloses in figure 2, wherein item 72 is a protection circuit, which, as disclosed in column 6 lines 7 – 19, protect the system, including the electronic components from an overcharging state.

The appellant further argues that the examiner does not rely on the Fujiwara or Saeki references to remedy for the deficiencies of Shirakawa. Fujiwara is used a primary reference for claim 36. Saeki discloses in figure 3 wherein a fuse, item 102, is serially connected between a positive terminal of the battery core pack, items E1-E3, and a charge transistor, item 103 for interrupting current flowing from the battery core pack to the electronic components.

16. Fifteenth Ground of Rejection (Claim 32)

The appellant argues wherein the Fujiwara reference does not disclose or suggest a protection circuit adapted to distinguish between current consumption associated with electronic components coupled to the battery core pack and forming the battery pack and current flow associated with the host device to determine whether an excessive current consumption condition exists associated with the electronic components of the battery pack. Fujiwara discloses in figure 1 wherein item 1 is a protection circuit. Column 6 line 49 – column 7 lines 27 discloses wherein excessive charging current is detected throughout the electronic components within the battery pack. Column 5 line 35 – column 6 line 20 discloses wherein the over-discharged and overcharged state are compared by the circuit.

The appellant further argues that the Shirakawa reference does not remedy the deficiencies of the Fujiwara reference. Shirakawa discloses in figure 2, wherein item 72 is a protection circuit, which, as disclosed in column 6 lines 7 – 19, protect the system, including the electronic components from an overcharging state.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Alexis Boateng

Conferees:

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David Blum (SPRE 2800)

KARL EASTHOM
SUPERVISORY PATENT EXAMINER